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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,558	09/22/2003	John H. Sohl III	36507-193188	5541
26694	7590	05/17/2006	EXAMINER	
VENABLE LLP			MOSS, KERI A	
P.O. BOX 34385			ART UNIT	
WASHINGTON, DC 20045-9998			PAPER NUMBER	

1743

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/666,558	SOHL ET AL.	
	Examiner	Art Unit	
	Keri A. Moss	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/27/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Amendment filed on 3/27/06 has been acknowledged. Claims 1-33 are pending.

Response to Amendment

Rejection of claims 12-30 under 35 U.S.C. 112 first paragraph has been withdrawn in light of applicant's arguments.

Rejection of claims 12-31 under 35 U.S.C. 112, second paragraph, for not particularly pointing out and distinctly claiming the invention has been withdrawn in light of applicant's arguments.

Rejection of claims 3-33 under 35 U.S.C. 112, second paragraph has been raised in view of applicant's amendments.

Rejection of claims 1-32 as being anticipated by Robbat and Adriany has been withdrawn in light of applicant's amendments.

Rejection of claims 1-11 and 33 as being anticipated by Thompson has been raised in light of applicant's amendments.

Rejection of claims 12—32 as unpatentable over Thomson in view of Christy in view of Adriany and over Thompson in view of Christy in view of Henry has been raised in light of applicant's amendments.

Claim Rejections - 35 USC § 112

1. Claims 3-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding dependent claims 3 and 7 fail to further limit independent claims 1 and 4, respectively, because they contain elements that are in the parent claim. In claim 3, the moisture separator and the power supply are found in parent claim 1. In claim 7, the in situ gas stream is found in claim 4.

In claims 3, 7, 10 and 28 is unclear what a calibrator, calibration material or a calibration gas is.

Regarding claims 12-30, it is unclear what an MIP is since '956 is only an example. It is not clear what else an MIP can comprise.

Regarding claims 4-33 it is unclear what is meant by "selectably." No definition for the word can be found.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims **1-11** and **33** are rejected under 35 U.S.C. 102(b) as being anticipated by Thompson (USP 5,447,055). Regarding claims 1-3, in Figure 1, Thompson discloses an enhanced scanning solutions module comprising a flow control subsystem (parts 30,

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36, 40) that is adapted to be configured or reconfigured in a plurality of operator-selectable measurement subsystems prior to exhaust (column 6 lines 10-18); a detector subsystem (part 44) coupled to the flow control (via part 41); a moisture separator (part 34) coupled to the flow control subsystem (via 35); a sampling subsystem (parts 20 and 22) coupled to the flow control subsystem; and a software control subsystem coupled to the flow control subsystem (paragraph bridging columns 2 and 3) and the detector subsystem (column 3 lines 6-34). The sampling subsystem contains a sample loop (part 22). The enhanced scanning solutions module further comprises a bypass module (part 31), a tracer gas (column 1 lines 6-27); and a pressure control subsystem (vacuum pump).

Regarding claims **4-11** and **33**, Thompson discloses a detector subsystem (part 44) adapted to be coupled to an in situ gas stream; a sampling subsystem (parts 20 and 22) adapted to be coupled to the in situ gas stream; and a software control subsystem coupled to said detector subsystem and said sampling subsystem; wherein the enhanced scanning solutions module is adapted to be configured and reconfigured in a plurality of operator-selectable measurement subsystems prior to exhaust (column 2 lines 26-64). A moisture subsystem (part 34) adapted to be coupled to the in situ gas stream (column 2 lines 43-45). The enhanced scanning solutions module further comprises: a plurality of pre-programmable operator-selectable measurement subsystems (which are programmable based on time) that at least one of interactively configure and/or reconfigures to perform any of a plurality of measurement functions, subject to particular conditions (columns 7 lines 6-27); and an interface between the

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detector subsystem (44) and a gas handling subsystem allowing insertion of a sample, a bypass, a detector subsystem feedback (column 7). The software control subsystem comprises a data logger, a timer, a valve control system, a monitor, a display and a recording function (column 7) and comprises a feedback from a subsystem to the flow control subsystem (columns 7 and 8).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims **12-22, 26-29, 31-32** are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson in view of Christy (USP 5,639,956). While Thompson discloses sample probes, Thompson does not disclose probes comprising membranes. Christy discloses a permeable membrane sensor probe with a housing and a gas permeable membrane (abstract). This membrane interface probe (MIP) is cylindrical and adapted to be used with a rod system and a push and hammer system (column 1) and utilizes a rod string (part 14). Christy teaches a watertight arrangement (paragraph bridging columns 2 and 3) that may include an electrical coupling (column 6 lines 1-12). Figure 4 demonstrates that the modular components of the MIP are inherently replaceable in the field. The MIP has an external barrel having a cavity (part 18) that is capable of receiving a field-insertable removable cartridge-heating element. The MIP has a removable trap (membrane and gas distribution screen) adapted to collect one or more volatile organic compounds (Figure 4) and detect concentration levels of the compounds (column 6 lines 1-12). Christy also anticipates a GPS system by teaching the use of a depth-measuring system well known in the art (column 5 lines 3-6).

Regarding claim **12**, while Christy does not disclose the diameter of the sensor, the diameter of the sensor is a result effective variable. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) teaches that optimization of a result-effective variable is ordinarily within the skill of one in the art. A result-effective variable is one that has well-

known and expected results. Varying the diameter of the probe of either variable has the well-known and expected result of either fitting more functional units inside (if larger) or enabling the probe to more easily travel deeper into the ground (if smaller).

Therefore, it would have been obvious to one of ordinary skill in the art to meet the size requirements of claimed probe by modifying Christy and selecting the size of 2.125 inches in order to fit more functional units inside the probe.

Regarding claims **16-19**, Christy teaches coupling a membrane and a sensor to the outer circumference of the MIP housing (see above) but does not disclose having more than one permeable membrane coupled to the housing. *St. Regis Paper v. Bemis* 193 USPQ 8, 11; 549 F2d 833 (7th Cir. 1977) teaches that it is obvious to duplicate parts for multiple effects. A probe with more than one sensor would enable sensing on different angles around the probe and would allow for more accurate sensing while minimizing the need for more probes in the same area. Therefore, it would have been obvious to one of ordinary skill in the art to modify the Christy structure by adding more membrane and sensor units to the outer circumference of the MIP housing in order to multiply the sensing effect and reduce the number of probes needed for an area.

While Thompson teaches the use of probes, the Christy device teaches advantages over the Thompson disclosed probes. The Christy probe provides for a probe with a permeable membrane that is resistant to tearing and collapsing as the probe is driven through the soil and the membrane is exposed to the soil. Therefore, it would have been obvious to replace the probes disclosed in Thompson with the probe

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disclosed in Christy to gain the advantages of probes with a membrane that resists tearing and collapsing while driving the probe into the ground.

8. Claims **24-25** and **30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson and Christy as applied to claims 12-22, 26-29, 31-32 above, and further in view of Adriany. Thompson and Christy do not disclose a field-insertable removable cartridge heating element or a waterproof electrical connector or O-ring seal or a heated transfer line. Adriany discloses a membrane interface probe apparatus (Fig. 3) with an external barrel having a cavity 30 adapted to improve watertight integrity by including underwater cabling electrical couplings 38 and 52 and O-ring mechanical couplings 42. The probe is also operative to increase likelihood of collection of volatile organic mass (Column 2 lines 44-46). The membrane interface probe sensor's modular components can be replaced on site (Column 8 lines 1-3). The apparatus comprises a removable trap 28 (see Column 8 lines 1-3) that traps volatile organic compounds (Column 8 lines 7-10). The sensor contains a heated transfer line 86 to surface detector suite 44.

The advantage of Adriany is that it enables remote detection of pollutants in areas in which the probe may be immersed in liquids. Therefore, it would have been obvious to one of ordinary skill in the art to modify the structures of Thompson and Christy in order to enable probe sensing in liquid immersion.

9. Claim **24** is rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson and Christy as applied to claims 4, 20 and 21 above, and further in view of

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Henry (USP 6,938,506). Thompson and Christy do not disclose a conductivity nose assembly. Conductivity nose assemblies are well known among those with ordinary skill in the art for the purpose of sensing when the probe contacts an aqueous solution (column 1). Henry discloses a sensor head apparatus that is a removeable conductivity nose assembly (abstract; column 8 lines 35-50). It would have been obvious to one of ordinary skill in the art to modify the Thompson and Christy apparatus with the removable conductivity nose assembly disclosed in Henry to gain the advantage of being able to detect when the sensing probe contacts aqueous solutions.

Conclusion

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



LYLE A. ALEXANDER
PRIMARY EXAMINER